AMENDMENTS TO THE CLAIMS

(IN FORMAT COMPLIANT WITH THE REVISED 37 CFR 1.121)

1. (CURRENTLY AMENDED) An architecture comprising:

a first circuit configured to (i) transmit one or more first serial streams in response to a plurality of first source data streams and (ii) recover a plurality of second source data streams in response to one or more second serial streams;

a second circuit configured to (i) transmit said one or more second serial streams in response to said plurality of second source data streams and (ii) recover said plurality of first source data streams in response to said one or more first serial streams; and

one or more pairs of communication channels coupling said first circuit and said second circuit, wherein (i) each of said first and second serial streams comprise interleaved data from said first and second source data streams, respectively, and (ii) said first and second circuits are configured to transmit simultaneously.

2. (ORIGINAL) The architecture according to claim 1, wherein:

said first circuit is further configured to transmit via a first communication channel of each of said one or more pairs of communication channels; and

said second circuit is further configured to transmit via a second communication channel of each of said one or more pairs of communication channels.

3. (ORIGINAL) The architecture according to claim 2, wherein the number of serial streams is less than the number of source streams.

4. (ORIGINAL) The architecture according to claim 1, wherein said serial streams have a signaling rate that is an integer multiple of a data rate of said source data streams.

5. (ORIGINAL) The architecture according to claim 1, wherein each of said communication channels comprises a simplex serial link comprising a transmission line selected from the group consisting of a fiber optic cable, a coaxial cable, a twisted pair cable, a microstrip transmission line, a stripline transmission line, and any other transmission line configured to carry said serial stream.

6. (ORIGINAL) An apparatus comprising:

a first circuit configured to generate one or more first interleaved streams in response to a plurality of first source data streams; and

a second circuit configured to recover a plurality of second source data streams in response to one or more second interleaved data streams.

7. (ORIGINAL) The apparatus according to claim 6, wherein said one or more first interleaved data streams are carried by a first communication channel of each of one or more pairs of communication channels.

8. (ORIGINAL) The apparatus according to claim 7, wherein said one or more second interleaved data streams are carried by a second communication channel of each of said one or more pairs of communication channels.

9. (ORIGINAL) The apparatus according to claim 6, wherein said first circuit comprises an interleaver circuit configured to multiplex said plurality of first source data streams into said one or more first interleaved data streams.

10. (ORIGINAL) The apparatus according to claim 6, wherein said second circuit comprises a bonding circuit configured to generate one or more bonded (aligned) data streams from said one or more second interleaved data streams.

11. (ORIGINAL) The apparatus according to claim 10, wherein said second circuit further comprises a de-interleaver circuit configured to demultiplex said plurality of second source data streams from said one or more bonded data streams.

12. (ORIGINAL) The apparatus according to claim 6, wherein said serial streams have a signaling rate that is an integer multiple of a data rate of said source data streams.

13. (ORIGINAL) The apparatus according to claim 12, wherein said integer multiple is equal to the product of a number of source data streams carried by an interleaved data stream and a parallel-to-serial conversion ratio used to generate said serial stream from said interleaved data stream.

14. (ORIGINAL) The apparatus according to claim 6, wherein each of said one or more serial streams are carried by a communication channel comprising one or more simplex serial links comprising a transmission line selected from the group consisting

of a fiber optic cable, a coaxial cable, a twisted pair cable, a microstrip transmission line, a stripline transmission line, and any other transmission line configured to carry said serial stream.

15. (CURRENTLY AMENDED) A method for multiplying a throughput of one or more pairs of communication channels comprising the steps of:

(A) communicating a plurality of first source data streams from a first host to a second host as one or more first interleaved data streams via a first communication channel of each of said one or more pairs of communication channels; and

(B) communicating a plurality of second source data streams from said second host to said first host as one or more second interleaved data streams via a second communication channel of each of said one or more pairs of communication channels.

16. (ORIGINAL) The method according to claim 15, wherein the step A and the step B are performed simultaneously.

17. (ORIGINAL) The method according to claim 15, wherein the step A comprises the sub-steps of:

generating one or more first serial streams in response to said plurality of first source data streams; and

recovering said plurality of first source data streams from said one or more first serial streams.

18. (ORIGINAL) The method according to claim 15, wherein the step B comprises the sub-steps of:

generating one or more second serial streams in response to said plurality of second source data streams; and

recovering said plurality of second source data streams from said one or more second serial streams.

19. (CURRENTLY AMENDED) The method according to claim 15, wherein said ~~source data streams are~~ interleaved ~~and~~ data streams are serialized to generate ~~said~~ serial streams.

20. (ORIGINAL) The method according to claim 19, wherein said source data streams are recovered by deserializing, bonding and de-interleaving said serial streams.

Please add the following new claims:

21. (NEW) The method according to claim 15, further comprising the step of:

converting said one or more pairs of communication channels from half-duplex operation at a first rate to full-duplex operation at a second rate, wherein said second rate is set to

maintain a bandwidth of said one or more pairs of communication channels at said first rate.

22. (NEW) The apparatus according to claim 1, wherein:

said first and second circuits are further configured to convert said one or more pairs of communication channels from half-duplex operation to full-duplex operation while maintaining a bandwidth of said one or more pairs of communication channels.

23. (NEW) The apparatus according to claim 22, wherein:

said first and second circuits are further configured to connect to said one or more pairs of communication channels in place of input and output buffers arranged as bi-directional bus drivers.